NO_X Emissions Trading in the Northeast: Trends and Outlook

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Summary

The NO_X Budget program is a cap-and-trade (C/T) system for the control of NO_X emissions from large stationary sources, mostly electric power plants. As the name implies, C/T systems aim to create a permanent limit on total emissions, which environmental advocates feel is their key virtue. The first steps in developing a C/T system are for the government to define the regulated sources and the total amount of pollution that they can emit, the "cap." Typically, the cap is set in mass units (e.g. tons), is lower than historical emissions, and declines over time. The government creates *emissions allowances* equal in number to the size of the cap and distributes them to the regulated sources. All C/T systems so far have more or less used historical emissions as the basis for distributing allowances free of charge, a practice sometimes called grandfathering, although in principle they could be auctioned to the highest bidder or distributed in other ways. The government then requires regulated facilities to surrender emission allowances equal to the emissions of the facilities on a regular basis (e.g. annually). The government will also set standards for emissions monitoring and will establish rules for how allowances may be used, in particular if unused allowances can be saved (or "banked") from one period to another. The government allocates emission allowances, a highly contentious process because emission allowances become valuable assets. Of course, there may need to be some enforcement activity as well.

The largest of NO_X C/T system in place today, and the only one that affects significant numbers of coal-fired power plants is the Ozone Transport Commission (OTC) NO_X budget program. This C/T system covers states in the Eastern Seaboard from Maryland and Pennsylvania through Maine.

The OTC was created in the 1990 Clean Air Act Amendments to coordinate emission control regulations. In 1994, the OTC states signed a memorandum of understanding that committed them to emissions reductions and provided for the development of a "region-wide trading mechanism." The states worked to develop such a program, and by the end of 1998, all but Maryland had rules place for the program to start in 1999. Regulated sources felt this was actually rather short-fused, because the rules were not in place in several states until less than a year was left before the start of the first ozone season, while contracting for, engineering, and constructing NO_X control technologies can take several years. Regulators disagree with this

assessment, noting that if the emission trading program had not come together, very similar command-and-control regulation would have been the default.

The NO_X Budget applies to electrical generating units 25 megawatts or larger and similar-sized industrial facilities (such as process boilers and refineries), and covers emissions from May through September. There are over 470 individual sources in the program, owned by 112 distinct companies and government bodies. The NO_X budget has three phases. The second and third use a C/T system to reduce total emissions by 55 percent to 65 percent for 1999–2002 and by 65 percent to 75 percent starting in 2003. The final Phase III standard is approximately equivalent to 0.15 pounds per million Btu's.

One unusual feature of the NO_X budget program is that banking can be restricted so that the value of future allowances is uncertain. Under this feature, called progressive flow control, banked allowances sell at a discount announced by the EPA after the end of the year they are first valid. Thus, facilities cannot be sure exactly what their banked allowances will be worth in the future, either in terms of dollars or for meeting allowance surrender requirements.

A second distinctive feature of the OTC NO_X budget is that it had no early auctions or other methods for price discovery before the year it actually went into effect. (In contrast, the start of the surrender requirements in the SO_2 system was preceded by two years of small auctions.)

These factors led to a rough start for the OTC NO_X budget. The somewhat hurried introduction of the program, coupled with a lack of mechanisms for early price discovery and a reluctance of electricity generators to spend capital on emission control equipment (especially while restructuring was getting started) led to significant price spikes. Allowance prices had been forecast in the $1,200-to-$3,000-a-ton range, but they quickly shot up to over $7,000 a ton as a few companies realized they really would face an emissions cap but did not have the time to install emission controls. The good news in this case is that government did not waver in its support of market-based approaches. Although at first some companies struggled to comply with the program, none of them sought refuge in the courts. Instead they used new markets for fuel, electricity, and emissions allowances to manage the transition to cleaner power production. Prices eventually fell back below forecast values.

Since then, the OTC NO_X budget has matured. Allowance prices in 2000 were under $600 a ton. They peaked at over twice that value in the 2000–01 winter, and as the summer of 2001 turned out to be relatively cool, they have since declined back to around $600 a ton. Emission reductions have been substantial and a large bank of NO_X allowances has been built up. More importantly, price discovery for Phase III (2003 and beyond) allowances is now underway, with several hundred allowances trading hands, most at prices at or above $4,500 a ton.